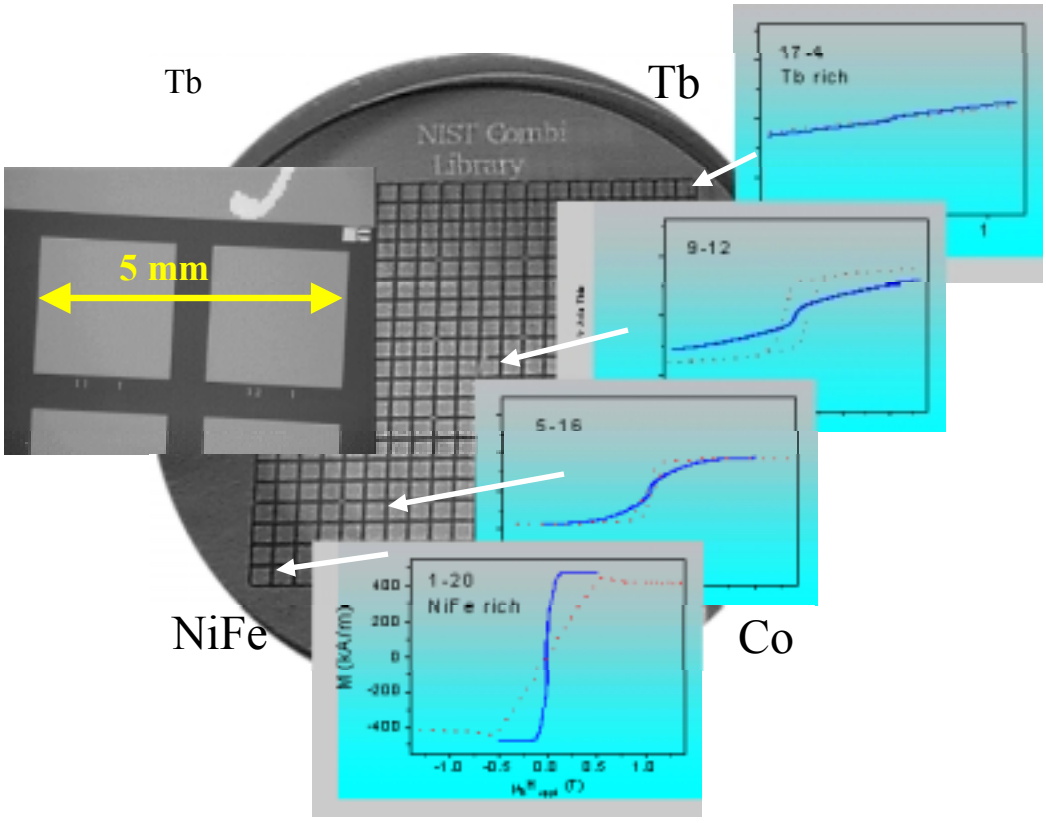
Modeling and characterization

- Critical Issues: The technical challenge lies in developing quantitative measurement techniques with micrometer spatial resolution, capable of rapidly scanning areas of a few square centimeters. New theories are required for modeling the elastic response of the library and to develop techniques for inversion of the measured values to determine the parameters characterizing the library.
- Research Strategy: The goal is to develop a mathematical model and measurement techniques for evaluating the structural, mechanical, and magnetic properties of libraries of new electronic, magnetic, and polymeric materials.
- Research Highlights: A variety of measurement techniques are being developed and adapted for library screening and characterization. Methods include x-ray diffraction, scanning acoustic microscopy, dynamic atomic force microscopy, point-probe ultrasonics, thermal screening, and magneto-acoustic techniques. A theoretical model based upon the elastodynamic Green's functions is being developed that would give the local acoustic response of the library. Libraries of giant magnetostrictive alloys have been fabricated and are one of the combinatorial systems currently under investigation.



For more information ...

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